



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,109	06/15/2005	Koji Yoshino	38340	9045
53054 7590 12/17/2009 PEARNE & GORDON LLP 1801 EAST 9TH STREET SUITE 1200 CLEVELAND, OH 44114-3108				
EXAMINER				
VAN, QUANG T				
ART UNIT		PAPER NUMBER		
3742				
NOTIFICATION DATE		DELIVERY MODE		
12/17/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patdocket@peame.com

dchervenak@peame.com

Office Action Summary

Application No.

10/539,109

Applicant(s)

YOSHINO ET AL.

Examiner

Quang T. Van

Art Unit

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,8,9,11-15 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,8,9,11-15 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 May 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

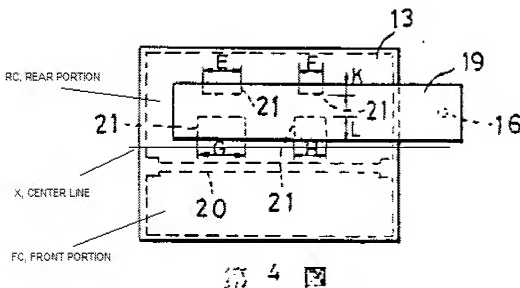
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 8, 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCammon et al (US 4,556,772) in view of JP 63174296A, cited by applicant, Benveniste et al (US 6,759,665) new cited and Yoshimura et al (JP 54048348A) cited by applicant. McCammon discloses a microwave oven cavity air flow system comprising a magnetron (30, figure 3) to a heating chamber (12) via a waveguide (34), wherein an electricity feeding port (64) for radiating the microwave is provided at a ceiling wall (20) of the heating chamber (12), and the wave guide (34) is formed in an L-like shape including a side waveguide (34b) extended upwardly along an outer side face (14) of the heating chamber (12) such that the side waveguide (34b) is in direct contact with the outer side face of the heating chamber (12) and an upper waveguide (34a) extended from an upper end of the side wave guide (34b) to the electricity feeding port (64) along an outer face of the ceiling wall (20). However, McCammon does not disclose a plurality of electric feeding ports feeding ports, wherein when the plurality of electricity feeding ports are aligned in a front and rear direction of the ceiling wall, the opening area of the electricity feeding port at a position proximate to a center of the ceiling wall is set to be larger than the opening area of the electricity feeding port at a position remote from the center of the ceiling wall, the opening area of the electric

feeding port at a position proximate to the center of the ceiling wall reaches one end of the waveguide, and the opening area of the electricity feeding port at a position remote from the center of the ceiling wall does not reach a rear waveguide wall, and a distance between a center of the opening area of the electricity feeding port and an antenna of the magnetron is $g/2$ multiplied by an integer, wherein g is a wavelength of the microwave propagated at an inside of the waveguides, and wherein an inclined face is formed at a connecting portion between the upper waveguide and the side waveguide. JP 63174296A discloses a plurality of pieces of the electric feeding ports (17, 21, Figures 1-5), wherein the plurality of electricity feeding ports (17, 21) are formed by at least two or more kinds of electricity feeding ports having different shapes and opening areas (Figure 1-5), wherein when the plurality of electricity feeding ports (17, 21) are aligned in a front and rear direction of the ceiling wall, the opening area (G) of the electricity feeding port (21, Figure 4) at a position proximate to a center of the ceiling wall is set to be larger than the opening area (E, Figure 4) of the electricity feeding port at a position remote from the center of the ceiling wall (Figure 4), the electricity feeding ports (21, Figure 4) are mounted to the ceiling wall, the electricity feeding ports (21, Figure 4) being mounted at a position away from a line (X, Figure below) equally dividing the ceiling wall into two in a front (FC, Figure below) and rear (RC, Figure below) direction, the opening area of the electric feeding port (G, Figure below) at a position proximate to the center (X, Figure below) of the ceiling wall reaches one end of the waveguide (19), and the opening area of the electricity feeding port (E) at a position remote from the center (X, Figure below) of the ceiling wall does not reach a rear

waveguide wall (see Figure 6). Beveniste discloses a distance between a center of the opening area of the electricity feeding port and an antenna of the magnetron is $g/2$ multiplied by an integer, wherein g is a wavelength of the microwave propagated at an inside of the waveguides (col. 12, lines 39-48). Yoshimura discloses an inclined face is formed at a connecting portion between the upper waveguide and the side waveguide (Figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in McCammon a plurality of pieces of the electric feeding ports feeding ports, wherein the plurality of electricity feeding ports are formed by at least two or more kinds of electricity feeding ports having different shapes and opening areas, wherein when the plurality of electricity feeding ports are aligned in a front and rear direction of the ceiling wall, the opening area of the electricity feeding port at a position proximate to a center of the ceiling wall is set to be larger than the opening area of the electricity feeding port at a position remote from the center of the ceiling wall, the opening area of the electric feeding port at a position proximate to the center of the ceiling wall reaches one end of the waveguide, and the opening area of the electricity feeding port at a position remote from the center of the ceiling wall does not reach a rear waveguide wall, as taught by JP 63174296A in order to distribute temperature uniformly throughout the heating chamber, and a distance between a center of the opening area of the electricity feeding port and an antenna of the magnetron is $g/2$ multiplied by an integer, wherein g is a wavelength of the microwave propagated at an inside of the waveguides as taught by Beveniste in order to disperse microwave uniformly to the heating chamber, and an inclined face is formed at a

connecting portion between the upper waveguide and the side waveguide as taught by Yoshimura in order to connect the upper and side waveguide together. With regard to claim 8, JP6317296A also discloses a heating member in a linear shape (20, Figure 4) for heating by a heater is mounted to the ceiling wall of the heating chamber (12) and the electricity feeding ports (21, Figure 4) are mounted to the ceiling wall, both the heating member (20, Figure 4) and the electricity feeding ports (21, Figure 4) being mounted at a position away from a line (X, Figure below) equally dividing the ceiling wall into two in a front (FC, Figure below) and rear (RC, Figure below) direction.



3.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over
McCammon et al (US 4,556,772) in view of JP 63174296A, cited by applicant,
Benveniste et al (US 6,759,665) new cited and Yoshimura et al (JP 54048348A) cited

by applicant., and further in view of JP 62100982A, also cited by applicant, or Smith (US 3,210,511) previously cited. McCammon/ JP 63174296A/Benveniste/Yoshimura disclose substantially all features of the claimed invention except an antenna of the magnetron is arranged to be directed to a side of the heating chamber and to be opposed to the side wall and the side wall is formed with a bulged portion bulged to an inner side of the chamber. JP 62100982A and Smith disclose an antenna (9 of '982, and Figures 1 and 3 of Smith) of the magnetron (8 of '982, and 11 of Smith) is arranged to be directed to a side of the heating chamber and to be opposed to the side wall and the side wall is formed with a bulged portion (7 of '982, and 15 of Smith) bulged to an inner side of the chamber (1 of '982, and 6 of Smith). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in McCammon/ JP 63174296A/Benveniste/Yoshimura an antenna of the magnetron is arranged to be directed to a side of the heating chamber and to be opposed to the side wall and the side wall is formed with a bulged portion bulged to an inner side of the chamber as taught by JP 62100982A and Smith in order to prevent interference with antenna.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCammon et al (US 4,556,772) in view of JP 63174296A, cited by applicant, Benveniste et al (US 6,759,665) new cited and Yoshimura et al (JP 54048348A) cited by applicant., and further in view of Noda et al (JP05074568A), also cited by applicant. McCammon/ JP 63174296A/Benveniste/Yoshimura disclose substantially all features of the claimed invention except the heating member is arranged to be inclined to the line

equally dividing the ceiling wall into two in the front and rear direction. Noda discloses a heating member (3) is arranged to be inclined to the line equally dividing the ceiling wall into two in the front and rear direction (figure 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in McCammon/ JP 63174296A/Benveniste/Yoshimura a heating member is arranged to be inclined to the line equally dividing the ceiling wall into two in the front and rear direction as taught by Noda in order to disperse heat evenly in the microwave oven.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCammon et al (US 4,556,772) in view of JP 63174296A, cited by applicant, Benveniste et al (US 6,759,665) new cited and Yoshimura et al (JP 54048348A) cited by applicant., and further in view of DeRemer (US 4,307,285), cited in previous Office Action. McCammon/ JP 63174296A/Benveniste/Yoshimura disclose substantially all features of the claimed invention except a heater is mounted in a recess portion of the ceiling wall of the heating chamber. DeRemer discloses a heater (81-82) is mounted in a recess portion (Figure 3) of the ceiling wall (80) of the heating chamber (15). It would have been obvious to one ordinary skill in the art at the time the invention was made to utilize in McCammon/ JP 63174296A/Benveniste/Yoshimura a heater is mounted in a recess portion of the ceiling wall of the heating chamber as taught by DeRemer in order to provide more space for the heating chamber.

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCammon et al (US 4,556,772) in view of JP 63174296A, cited by applicant, Benveniste et al (US 6,759,665) new cited and Yoshimura et al (JP 54048348A) cited

by applicant., and further in view of Miller (US 4,463,239). McCammon/ JP 63174296A/Benveniste/Yoshimura disclose substantially all features of the claimed invention except a width of the waveguide is greater than $\lambda_0/2$ and less than λ_0 and the height of the waveguide is less than $\lambda_0/2$, wherein is λ_0 a wavelength of the microwave in a free space. Miller discloses a width of the waveguide is greater than $\lambda_0/2$ and less than λ_0 and the height of the waveguide is less than $\lambda_0/2$, wherein is λ_0 a wavelength of the microwave in a free space (col. 4, lines 56-60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in McCammon/ JP 63174296A/Benveniste/Yoshimura a width of the waveguide is greater than $\lambda_0/2$ and less than λ_0 and the height of the waveguide is less than $\lambda_0/2$, wherein is λ_0 a wavelength of the microwave in a free space as taught by Miller in order to have an efficiently radiating the microwave from the electricity feeding port.

Response to Amendment

8. Applicant's arguments with respect to claims 1-3,8-9,11-15 and 17 have been considered but are moot in view of the new ground(s) of rejection.
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang T. Van whose telephone number is 571-272-4789. The examiner can normally be reached on 8:00Am 5:00Pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quang T Van/
Primary Examiner, Art Unit 3742
December 9, 2009

Quang T Van
Primary Examiner
Art Unit 3742